

ART. III.—*Phreatoicus shephardi*—a New Species of
Fresh-water Isopoda from Victoria.

BY O. A. SAYCE.

(Plate III.)

[Read 19th April, 1900].

The species here described I received from Mr. J. Shephard, together with an undescribed Amphipod, and both were collected by him during a late Field Naturalists' Club excursion to the Plenty Ranges, which forms part of the Dividing Range, and is situated about 35 miles from Melbourne. A report on the district, with lists of fauna and flora, appears in the "Victorian Naturalist," vol. XVI., pages 163-170, in which, concerning the present species, Mr. Shephard says, "Several specimens of small Crustacea were secured from among the spongy mass of lower plant-life growing on the hillside, at the source of a spring, which is evidently permanent, as it is utilized for supplying the houses with water." I may further add that the spring is on the north side of the Dividing Range, and runs into the Wallaby Creek, that the geological formation is a small granite area, surrounded by a wide expanse of Upper Silurian, and that the altitude is about 2000 feet.

Unfortunately only one of the present species was obtained. It proved, on dissection, to be a male, and it is of interest as belonging to the peculiarly Australasian family Phreatoicidae, which is so far removed from other Isopods as to warrant, according to Stebbing, a new tribe, concerning which he says, "The genus is beyond dispute remarkable, requiring to be placed in a separate family, and though some may prefer to class this among the Asellota, I have ventured to think that a separate tribe Phreatoicidea should be instituted to receive it."¹ Chilton, who instituted the genus, has admirably discussed its characters

¹ A History of Crustacea, by Rev. T. R. R. Stebbing, M.A. International Sc. Series, vol. lxxiv., p. 391.

and affinities,¹ and, after enumerating the special resemblances to the Amphipoda, says that "an examination of them shows that none is of any particular importance in its bearing on the systematic position of the genus,"² and further he says "*Phreatoicus* occupies a fairly central position among the Isopoda, retaining to a greater extent than any others the typical characters of the Isopoda."³

Of the genus *Phreatoicus*, three species have been described, two blind forms from subterranean waters in New Zealand, and one, *P. australis*, Chilton, with functioning eyes, from the summit of Mount Kosciusko, New South Wales, which has also been identified by Mr. G. M. Thomson, from Mount Wellington, Tasmania.⁴ Two other allied genera have been determined, viz., *Phreatoicopsis*, Spencer and Hall, and *Phreatoicoides*, mihi.

Phreatoicus shephardi, sp. n.

(Pl. III., Figs. 1-10).

Specific Description.—*Male* (Fig. 1). Body somewhat stout, with few short setae scattered over surface. Eyes not formed. First five segments of pleon with pleura produced inferiorly, rounded below, their inferior margins thickly fringed with long setae, fewer and shorter ones extending along posterior margins. Inferior margins of terminal segment bearing six large curved simple spines, increasing in size distally, and eight finer simple spinules near to the base of the uropods. Margins above uropods rounded, and bearing one large and five small spines. Projection at the extremity of the telson very slightly produced, and tipped by one large median spine, and two smaller lateral ones; also a few long setae.

Upper antennae not reaching to the extremity of the peduncle of the lower, peduncle of three joints, flagellum of seven joints. Lower antennae (length unknown), peduncle as long as the longest axis through cephalon; first two joints subequal, transverse, third as long as first two combined, fourth slightly longer

¹ Trans. Linnean Soc. London, Zoology, vol. vi., part i.

² *Loc. cit.*, page 205.

³ *Loc. cit.*, page 209.

⁴ Proc. Roy. Soc. Tasmania, 1892, p. 32.

and more slender, fifth still longer, being as long as first three combined. First maxilla with outer lobe narrow, and apically furnished with twelve spines; inner lobe bearing four plumose setae. Maxilliped with distal outer angle of meros much produced, carpus also produced, but in a lesser degree, propodos ovoidal, broader than long, dactylos shorter and much narrower; epipodite extending to distal inner angle of meros. Appendages of peraeon spinose, dactylos of each unguiculate. Gnathopod having the propodos large, palm oblique, straight, clearly defined, and deeply serrated near articulation of dactylos. Pleopods normal. Uropods with peduncle not reaching to the extremity of telson, superior outer margin very spinose, its inferior distal angle not having any very thick setae with pectinations at their ends, inner ramus subequal in length to peduncle, outer ramus shorter; a single stout spine medianly on superior margin of each.

Female.—Unknown.

Colour.—Light brown, with indefinite markings of darker brown.

Size.—10 mm.

Habitat.—From amongst spongy moss at the source of a spring running into Wallaby Creek, Plenty Ranges, Victoria. Altitude about 2,000 feet.

Remarks.—This species is named in honour of Mr. J. Shephard, president of the Victorian Field Naturalists' Club. It agrees rather closely with *P. australis*, Chilton. Compared with Chilton's description of that species¹, the chief distinguishing features appear to be—

- (1). The pleon is relative longer. Taking the cephalon and peraeon as 100, then in *P. australis* the proportion is $\frac{58}{100}$, while in *P. shephardi* it is $\frac{66}{100}$.
- (2). The dactyli of the legs do not possess a secondary unguis. The palm of the subchelate hand of the first pair is straight, not convex, and clearly defined, not rounded at the postero-distal angle, as in *P. australis*; and, further, it is strongly serrated near the articulation of the dactylos.

¹ Records of Australian Museum, vol. i., pp. 149-171.

- (3). There is no appearance of any eyes or pigment.
- (4). The uropods have not at the end of the peduncle, below the articulation of the rami, any "very thick setae with a few pectinations at the ends of the upper sides only," which are characteristic of *P. australis*, nor are there any pectinated spinules on the inferior margin of the sixth segment.
- (5). The peduncle of the lower antenna is relatively longer.
- (6). The first maxilla has the outer lobe narrower and bearing only about twelve spines.
- (7). The maxilliped has the plate representing the epipodite larger, extending to the distal inner margin of the meros. The distal outer angle of the carpus is somewhat produced, the propodos is wider, being broader than long, and the dactylos is narrower.

DESCRIPTION OF PLATE III.

- Fig. 1.—Side view of *Phreatoicus shephardi*.
- „ 1a.—Projecting piece of Telson, under higher magnification.
- „ 2.—Upper Antenna.
- „ 3.—Lower Antenna.
- „ 4.—Left Mandible.
- „ 5.—Second Maxilla.
- „ 6.—First Maxilla.
- „ 7.—Maxilliped, inner surface uppermost.
- „ 8.—Part of First Peraeopod.
- „ 9.—Seventh Peraeopod.
- „ 10.—Uropod of Left side.

N.B.—Fig. 1 is drawn to a scale shown beside it, which represents 1 mm. equally enlarged. Figs. 2, 3, 8, 9 and 10 are drawn to a scale shown beside Fig. 9, representing 0.1 mm., and Figs. 4, 5, 6 and 7 are drawn to a scale shown beside Fig. 4, also representing 0.1 mm. enlarged.